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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,013	02/27/2002	William Christopher Hardy	RIC01068	6962

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MCI, INC
TECHNOLOGY LAW DEPARTMENT
1133 19TH STREET NW, 10TH FLOOR
WASHINGTON, DC 20036

EXAMINER	
RYMAN, DANIEL J	

ART UNIT	PAPER NUMBER
2665	15

DATE MAILED: 08/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/084,013	HARDY, WILLIAM CHRISTOPHER	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-11, and 13-38* is/are rejected.

7)☒ Claim(s) *5,6, and 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. In view of the Appeal filed on 6/28/2004, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 7-9, 14-19, 22-28, and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randic (USPN 6,275,797).

4. Regarding claims 1, 22, and 33-35, Randic discloses a method and system for testing telecommunications equipment in a network, including a packet switched network (col. 3, lines 9-30 and col. 4, line 31-col. 6, line 29), the method comprising steps of and the system

comprising means for: establishing a telephonic connection between a first network location and a second network location (Figs. 2 and 3; col. 2, lines 30-46; and col. 4, line 31-col. 5, line 43); transmitting at least one set of N waveforms (set of N words in a voice test file) from the first network location, each transmitted waveform (word in voice test file) including a waveform characteristic operative to assign a predetermined value relative to other waveforms in the at least one set (col. 2, lines 40-46; col. 3, lines 50-61; col. 4, lines 33-36; and col. 6, lines 20-36) where, as broadly defined, each word has a waveform characteristic operative to assign it a predetermined value relative to the other waveforms since each word is distinguishable from the other words in the set (i.e. "This is a test" is a set of four waveforms, namely "this", "is", "a", and "test", where each waveform is distinguishable from the other waveforms in the set); receiving at least one telephonic signal at the second network location via the communications channel (col. 5, line 23-col. 6, line 29); processing the at least one telephonic signal to obtain a received sequence of values (col. 5, line 23-col. 6, line 29); and comparing the received sequence of values to the predetermined sequence of transmitted values to determine a path quality factor (col. 2, lines 40-46 and col. 5, line 23-col. 6, line 36, esp. col. 6, lines 9-29).

Randic does not expressly disclose that the waveform characteristic is operative to assign a predetermined value relative to other waveforms, such that a predetermined sequence of values are assigned to packets carrying the N transmitted waveforms; however, this step is implicit in Randic's system. Randic discloses that the waveform characteristic is operative to assign a predetermined value relative to the other waveforms (col. 3, lines 50-61; col. 4, lines 33-36; and col. 6, lines 20-36). Randic also discloses that each waveform is compressed and encapsulated to obtain a series of packets (col. 4, lines 57-61); that the series of packets is transmitted to a

receiver (col. 4, line 61-col. 5, line 10); and that the receiver deencapsulates and decompresses the series of packets to obtain a received waveform (col. 5, lines 10-22) where the original waveform will be the received waveform if there are no alterations to the voice test file due to transport errors (col. 5, lines 23-32). Finally, Randic discloses that lost packets can change the assigned value of a waveform, such that a waveform (word in voice test file) is either assigned a wrong value (word is mistaken to be another word, i.e. "test" misinterpreted to be "beach") or the waveform is not assigned a value (word is so badly corrupted that it cannot be distinguished) (col. 5, line 10-col. 6, line 36). Thus, Randic implicitly discloses that the waveform characteristic is operative to assign a predetermined value relative to other waveforms, such that a predetermined sequence of values are assigned to packets carrying the N transmitted waveforms since changes in the received sequence of packet (lost packets) results in changes in the value of the transmitted waveform.

Additionally, Randic does not expressly disclose comparing the received sequence of values to the predetermined sequence of transmitted values to detect dropped packets without having access to packet switched network control data such that the testing of the telecommunication equipment is directed to detecting dropped packets in a network. Rather, Randic discloses that the comparing is performed to determine a path quality factor (col. 6, lines 9-43). However, Randic also discloses that alterations to the transmitted voice test file, which is used to determine the path quality factor, occur due to packet loss (col. 5, lines 28-31 and col. 5, lines 44-48). Randic further discloses using the path quality factor to determine problem areas in the packet communication network (col. 2, lines 40-46 and col. 6, line 66-col. 7, line 10) where the problem areas in the packet communication system result in packet loss (col. 5, lines 28-31

and col. 5, lines 44-48). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to compare the received sequence of values to the predetermined sequence of transmitted values to detect dropped packets without having access to packet switched network control data such that the testing of the telecommunication equipment is directed to detecting dropped packets in a network in order to determine problems in the packet communication network which will affect communication path quality.

Further, Randic does not expressly disclose that the method is implemented using computer-executable instructions. Examiner takes official notice that it is well known in the art to use software to implement a method since software is flexible. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use software to implement the method since software is flexible.

5. Regarding claim 7, referring to claim 1, as broadly defined, Randic discloses that each waveform includes a first segment and a second segment (col. 5, lines 10-36) where "segment" is a very broad term which can incorporate a variety of meanings. Here, the first segment will be interpreted to mean the silence period just prior to the word and the second segment will be interpreted to be the word itself.

6. Regarding claim 8, referring to claim 7, as broadly defined, Randic discloses that the second segment includes the representative waveform characteristic (col. 5, lines 10-36).

7. Regarding claim 9, referring to claim 1, Randic does not expressly disclose that each predetermined value includes a predetermined bit pattern; however, Randic does disclose that each predetermined value includes a predetermined word value (col. 6, lines 9-36). Randic also discloses that the voice test file is preferably a digitized voice packet file (col. 3, lines 26-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the predetermined value includes a predetermined bit pattern since the waveform (word of a voice test file) is stored in a digitized voice packet file where each word waveform will comprise a series of packets having a predetermined bit pattern.

8. Regarding claim 14, referring to claim 1, Randic discloses that the step of processing includes the step of dividing the at least one telephonic signal into received waveform sections having a duration substantially identical to the transmitted waveform (col. 5, line 10-col. 6, line 36, esp. col. 6, lines 9-36).

9. Regarding claims 15, 24, and 36, referring to claims 14, 22, and 35, Randic discloses analyzing each received waveform section to extract a received waveform characteristic (analyze received waveform to extract possible word value, i.e. determine whether to assign "beach" or "test" to a waveform) (col. 5, line 10-col. 6, line 36, esp. col. 6, lines 9-36); assigning each received waveform section a received value based on the received waveform characteristic (assign waveform section a word value or a silence designation, i.e. assign "test" to a waveform section) (col. 5, line 10-col. 6, line 36, esp. col. 6, lines 9-36); and generating a sequence of received values based on the step of assigning to obtain the received sequence of values (generate a sequence of received words, i.e. "This is a test") (col. 5, line 10-col. 6, line 36, esp. col. 6, lines 9-36).

10. Regarding claims 16, 17, 25, and 26, referring to claims 15 and 24, Randic discloses that a deviation between the predetermined sequence of values and the sequence of section values corresponds to a dropped packet (col. 5, lines 29-32 and col. 5, lines 44-48) where "deviation" is a broad term which can include any difference.

11. Regarding claims 18, 19, 27, and 28, referring to claims 16 and 24, Randic does not expressly discloses that a deviation between the predetermined sequence of values and the sequence of section values includes a repetition of at least one section value, the repetition corresponding to a dropped packet; however, Randic does disclose that packets can be dropped (col. 5, lines 29-32 and col. 5, lines 44-48). Randic also discloses the use of mechanisms in the network which will conceal dropped packets by replacing the missing packet with an interpolated packet (col. 5, lines 15-22). Examiner takes official notice that a simple interpolation mechanism is to repeat a previous packet. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that if a deviation between the predetermined sequence of values and the sequence of section values includes a repetition of at least one section value, the repetition corresponds to a dropped packet since this repetition is due to a error concealment mechanism.

12. Regarding claim 23, referring to claim 22, Randic discloses the transmission unit further comprises: a computer-readable medium for storing data representing the at least one set of N waveforms (col. 3, lines 26-30 and col. 4, lines 31-41); a processor coupled to the computer readable medium, the processor being programmed to retrieve the data from the computer readable medium (col. 3, lines 26-30 and col. 4, lines 31-41); and a codec device for converting the data into a signal suitable for transmission over the telecommunications network (col. 4, lines 56-67).

13. Claims 2-4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randic (USPN 6,275,797) as applied to claims 1, 14, 22, and 35 above, and further in view of Fitch (USPN 5,633,909).

14. Regarding claims 2 and 3, referring to claim 1, Randic does not expressly disclose that the representative waveform characteristic is a peak power level or average power level. Randic does disclose running the received waveforms through an automatic voice recognition (AVR) system which outputs a series of words (col. 6, lines 9-36). This series of words is then compared to a known series of words to determine the path quality factor (col. 6, lines 9-36). Randic also discloses that speech recognition is only one of a variety of properties associated with voice communication which suggests that the path quality factor could be obtained using other comparison techniques (col. 6, lines 36-43). Fitch teaches, in a system which compares a transmitted voice test file with a reference voice test file, that a known time domain comparison technique comprises using power levels to compare the reference test signal with the received test signal (col. 6, lines 51-56 and col. 7, lines 33-39). Examiner takes official notice that peak power and average power are two well-known power measurements. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use peak power or average power as the waveform characteristic, where each waveform (word) will have a peak or average power level, in order to utilize a known time domain comparison technique to derive the path quality factor.

15. Regarding claim 4, referring to claim 1, Randic does not expressly disclose that each waveform in the set of N waveforms includes a representative waveform characteristic corresponding to one of N peak power levels. Randic does disclose running the received waveforms through an automatic voice recognition (AVR) system which outputs a series of words (col. 6, lines 9-36). This series of words is then compared to a known series of words to determine the path quality factor (col. 6, lines 9-36). Randic also discloses that speech

recognition is only one of a variety of properties associated with voice communication which suggests that the path quality factor could be obtained using other comparison techniques (col. 6, lines 36-43). Fitch teaches, in a system which compares a transmitted voice test file with a reference voice test file, that a known time domain comparison technique comprises using power levels to compare the reference test signal with the received test signal (col. 6, lines 51-56 and col. 7, lines 33-39). Examiner takes official notice that peak power is a well-known power measurement. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have each waveform in the set of N waveforms include a representative waveform characteristic corresponding to one of N peak power levels, where each waveform (word) will have a peak power level, in order to utilize a known time domain comparison technique to derive the path quality factor.

16. Regarding claim 11, referring to claim 1, Randic does not expressly disclose that the representative waveform characteristic includes a frequency of the waveform. Randic does disclose running the received waveforms through an automatic voice recognition (AVR) system which outputs a series of words (col. 6, lines 9-36). This series of words is then compared to a known series of words to determine the path quality factor (col. 6, lines 9-36). Randic also discloses that speech recognition is only one of a variety of properties associated with voice communication which suggests that the path quality factor could be obtained using other comparison techniques (col. 6, lines 36-43). Fitch teaches, in a system which compares a transmitted voice test file with a reference voice test file, that a known frequency domain comparison technique comprises using frequencies to compare the reference test signal with the received test signal (col. 6, lines 51-56 and col. 7, lines 40-56). Therefore, it would have been

obvious to one of ordinary skill in the art at the time of the invention to have the representative waveform characteristic include a frequency of the waveform, where each waveform (word) will have a frequency, in order to utilize a known frequency domain comparison technique to derive the path quality factor.

17. Claims 10, 20, 29, 30, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randic (USPN 6,275,797) as applied to claims 1, 14, 24, and 35 above, and further in view of Newton ("Newton's Telecom Dictionary").

18. Regarding claims 10 and 30, referring to claims 1 and 29, Randic does not expressly disclose that the representative waveform characteristic or the section waveform characteristic is a waveform corresponding to a CELP symbol; however, Randic does disclose that the waveform is compressed and packetized (col. 4, lines 57-61). Randic further discloses that the waveform is digitized before it is transmitted (col. 4, lines 16-19 and col. 4, lines 57-61). Newton discloses that CELP is a well-known coding and compression technique, used when converting analog voice signals into digital voice signals, that compresses voice signals by representing the data as a code index number. As such, in CELP the "data transmitted across the network are only the index number of [a] selected code description." Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the representative waveform characteristic and the section waveform characteristic is a waveform corresponding to a CELP symbol since CELP symbols are merely a well-known format for representing voice signals.

19. Regarding claims 20, 29, and 37, referring to claim 14, 24, and 35, Randic does not expressly disclose comparing each received waveform section to a plurality of CELP waveform patterns; assigning a symbol number to the received waveform section based on the step of

comparing each received waveform section; and generating a sequence of received values using the symbol numbers of the received waveform sections, to thereby obtain the received sequence of values; however, Randic does disclose that the waveform is compressed and packetized in the transmitter (col. 4, lines 57-61) and decompressed and depacketized in the receiver (col. 5, lines 10-22). Randic further discloses that the waveform is digitized before it is transmitted (col. 4, lines 16-19 and col. 4, lines 57-61). Newton discloses that CELP is a well-known coding and compression technique, used when converting analog voice signals into digital voice signals, that compresses the voice signal by representing the data as a code index number. As such, in CELP the "data transmitted across the network are only the index number of [a] selected code description." Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to compare each received waveform section to a plurality of CELP waveform patterns; to assign a symbol number to the received waveform section based on the step of comparing each received waveform section; and to generate a sequence of received values using the symbol numbers of the received waveform sections, to thereby obtain the received sequence of values in order to utilize CELP, a well known format for representing voice signals, to transmit the waveforms such that the AVR system of Randic operates on the received waveform sections.

20. Claims 13, 21, 31, 32, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randic (USPN 6,275,797) as applied to claims 1, 14, 24, and 35 above, and further in view of Fitch (USPN 5,633,909) in further view of Hardy (USPN 5,748,876).

21. Regarding claims 13 and 32, referring to claims 1 and 31, Randic does not expressly disclose that the representative waveform characteristic or the section waveform characteristic

includes a semantically encoded waveform; however, Randic does disclose that that the waveform is compressed and packetized in the transmitter (col. 4, lines 57-61) from a voice filed stored in a computer (col. 3, lines 26-30 and col. 4, lines 11-16). Randic does not disclose the specifics of how the file is stored or the test signal is generated. Applicant discloses, by citing Hardy, that semantic waveforms are known in the prior art (page 12, lines 20-22) where Hardy discloses that semantic waveforms are used to generate analog signals for testing telephone lines (col. 3, lines 15-col. 4, line 4, esp. col. 3, line 46-col. 4, line 4). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have the representative waveform characteristic and the section waveform characteristic include a semantically encoded waveform since semantically encoded waveforms are well known in the art as a way to store an analog file.

22. Regarding claims 21, 31, and 38, referring to claims 14, 24, and 35, Randic does not expressly disclose comparing each received waveform section to a plurality of semantically encoded waveform patterns; assigning a bit-pattern to the received waveform section based on the step of comparing each received waveform section; and generating a sequence of section values using the bit-pattern of the received waveform sections, to thereby obtain the received sequence of values; however, Randic does disclose that the waveform is compressed and packetized in the transmitter (col. 4, lines 57-61) from a voice filed stored in a computer (col. 3, lines 26-30 and col. 4, lines 11-16). Randic also discloses that the received signal is decompressed and depacketized in the receiver (col. 5, lines 10-22). Randic does not disclose the specifics of how the file is stored or the test signal is generated. Applicant discloses, by citing Hardy, that semantic waveforms are known in the prior art (page 12, lines 20-22) where Hardy

discloses that semantic waveforms are used to generate analog signals for testing telephone lines (col. 3, lines 15-col. 4, line 4, esp. col. 3, line 46-col. 4, line 4). Therefore, it would have been obvious to one of ordinary skill in the art to compare each received waveform section to a plurality of semantically encoded waveform patterns; to assign a bit-pattern to the received waveform section based on the step of comparing each received waveform section; and to generate a sequence of section values using the bit-pattern of the received waveform sections, to thereby obtain the received sequence of values in order to utilize semantically encoded waveforms, a well known format for representing voice signals, to transmit the waveforms such that the AVR system of Randic operates on the received waveform sections.

Allowable Subject Matter

23. Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest having the peak power levels correspond to a value between 0 and N such that the predetermined sequence of values is 1, 2, ..., N or that the transmitted set of N waveforms comprise a single waveform having a monotonically increasing or decreasing power level.

24. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest having the representative waveform characteristic includes a number of phase changes present in a segment of the waveform. The prior art discloses that the waveform is a voice file where the voice file will not store data according to phase changes.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:00-5:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Ryman
Examiner
Art Unit 2665

DJR

Daniel J. Ryman

ALPUS H. HSU
PRIMARY EXAMINER